RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 2000

BUDGET ACTIVITY: 03 - Advanced Technology Development

PE NUMBER AND TITLE: 0603311F Ballistic Missile Technology

PROJECT: 634091

COST ($ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
634091	Missile Electronics	15,379	22,725	0	0	0	0	0	0	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

This program funds the development, and particularly the integrated demonstration, of advanced guidance, navigation, and control packages for ballistic missiles. These technologies are flown as Missile Technology Demonstration flights. Efforts directly support strategic force sustainment, space force applications, and space navigation. Also funded are upgrades for range and safety instrumentation for ballistic missiles. Emphasis is on technologies which increase safety, reduce maintenance, and improve reliability of the currently deployed intercontinental ballistic missile (ICBM) force at a lower life cycle cost. Future precision guidance and navigation technologies are demonstrated on sounding rocket and ICBM flights that support conventional ballistic missiles and hard and deeply buried target defeat capability technology needs. Note: This program was eliminated at the end of FY 1997; however, Congress added funds for Missile Technology Demonstration (MTD) flight testing and Radiation Hardened Electronics in FY 1998, for Ballistic Missile Technology and Range Safety in FY 1999, and for Ballistic Missile Technology in FY 2000.

(U) FY 1999 ($ in Thousands)

(U)	$11,918	Developed technologies for integration of advanced Global Positioning System - Inertial Navigation System (GPS-INS) technology into ballistic missile guidance systems and range instrumentation to meet more stringent range safety requirements. Transitioned proven advanced technologies into range qualification test programs.
(U)	$2,963	Enhanced GPS-INS navigation technologies to improve performance during the plasma blackout phase of ballistic missile reentry by applying current GPS anti-jamming technologies to ballistic missile technologies, developing advanced anti-jamming antenna architectures, and extending radiation hardening technologies to ballistic missile electronics systems.
(U)	$498	Developed technologies for evaluating the service life and aging properties of ballistic missile components and materials such as the component polymeric materials.
(U)	$15,379	Total

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(U) A. Mission Description Continued

(U) FY 2000 ($ in Thousands)

(U)	$12,943	Demonstrate technologies for integration of advanced GPS-INS technologies into ballistic missile guidance systems and range instrumentation to meet more stringent range safety requirements. GPS-INS range instrumentation systems greatly improve the integrity of missile tracking data in all phases of flight and operate at greatly reduced costs. Conduct range instrumentation flight safety approval and certification efforts on qualified technologies.
(U)	$4,940	Develop and demonstrate Global Positioning System - Inertial Navigation System (GPS-INS) navigation technologies to improve performance during ballistic missile reentry plasma blackout and jamming environments. These technologies will offset the detrimental effects of reentry plasma and jamming on GPS-INS navigation performance. Conduct reentry plasma physics characterization studies, extend existing plasma modeling and simulation tools, and enhance GPS anti-jamming receiver, antenna architectures, and window material technologies.
(U)	$3,755	Validate and demonstrate technologies for evaluating the service life, aging properties, and provide for the subsequent recycling of ballistic missile components and materials while minimizing environmental impacts and costs. Conduct demonstrations and validate advanced technologies for evaluating the aging properties of polymeric materials.
(U)	$1,087	Develop and demonstrate advanced common ballistic missile technologies necessary for Air Force and Navy replacement and life extension programs. Advanced common technologies will provide the required performance at greatly reduced costs to the government. Required technologies include development of solid state electrical and micro-mechanical guidance, navigation, and control (GNC) systems, advanced common vehicle designs capable of meeting mid and far-term GNC requirements, and high temperature materials capable of withstanding demanding reentry conditions.
(U)	$22,725	Total

(U) FY 2001 ($ in Thousands)

(U)	$0	No Activity.
(U)	$0	Total

(U) B. Budget Activity Justification

This program is in Budget Activity 3, Advanced Technology Development, since it develops and demonstrates technologies for existing system upgrades and/or new system developments that have military utility and address warfighter needs.

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(U) C. Program Change Summary ($ in Thousands)

		FY 1999	FY 2000	FY 2001	Total Cost
(U)	Previous President's Budget (FY 2000 PBR)	15,955	0	0	
(U)	Appropriated Value	16,000	23,000		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-45			
	b. Small Business Innovative Research	-490			
	c. Omnibus or Other Above Threshold Reprogram		-125		
	d. Below Threshold Reprogram				
	e. Rescissions	-86	-150		
	f. Other				TBD
(U)	Adjustments to Budget Years Since FY 2000 PBR				
(U)	Current Budget Submit/FY 2001 PBR	15,379	22,725	0	TBD

(U) Significant Program Changes:
Not Applicable.

(U) D. Other Program Funding Summary ($ in Thousands)

(U) Related Activities:
(U) PE 0602204F, Aerospace Sensors.
(U) This project has been coordinated through the Reliance process to harmonize efforts and eliminate duplication.

(U) E. Acquisition Strategy

Not Applicable.

(U) F. Schedule Profile

(U) Not Applicable.